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ENGINEERING, UPGRADING AND IMPLEMENTATION
FINAL REPORT

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Abstract

The Alexandra Renewal Project (ARP) is the first of the 8 Presidential Urban Renewal Projects nationwide (announced in February 2001) to be embarked upon. It is driven and managed by the Provincial Government of Gauteng and the Johannesburg City Council. Implementation is being carried out by City Council departments and agencies. Funding is through existing funding programs. A program objective is to marshal resources available at the three tiers of government to give greater focus and impact to on-going and new programs for the “nodes”.

In Alexandra a project management structure has been developed which, although complex, appears to be working satisfactorily. The ARP has three “Focus Areas”, namely, economic, social and physical. An overall Business Plan was prepared in September 2000 and subsequently more detailed functional business plans have been completed. Annual business plans are prepared from these plans. The functional business plan for Engineering Services covers all of the main municipal engineering/urban infrastructure sub-sectors and generally includes the provision and upgrading of bulk, secondary and tertiary infrastructure. The overall budget for the 7 year ARP plan is about R1.3 billion of which the plan for engineering services is approximately R304 million.

With regard to bulk engineering services much has already been achieved (some 20 projects are either underway or completed). These include: major improvements to the Jukskei River including widening and stabilization of its banks; new interceptor sewers to address overloading of the sewerage system; commencement of the London Road widening scheme including a new bridge span over the Jukskei and involving clearance of properties and voluntary relocation of families; development of a +500 units transit site to temporarily relocate families moving as a result of the development schemes; upgrading of gravel roads in a number of formal housing locations, and; development of two new park/playgrounds

A number of “informal” residential settlement typologies exist in Alexandra namely informal settlements on public open space and school sites; backyard shack dwellings; and those on river tributaries. Work on projects to address the upgrading of these various settlements is on-going. A major difficulty in the backyard areas is the resolution of ownership and tenure issues but good progress is being made. In tributary settlements a common-sense approach that entails the determining of a “life threatening flood line”, rather than adoption of the blanket 1 in 100 year storm flood line that would involve massive relocation has been studied and proposals put forward to reduce the number of properties affected. Two-storey housing fronting the tributaries is to be developed and the culverted tributaries are to form footpaths.

In addition to specific project issues, advice and assistance has also been given on the planning and design process and implementation issues particularly with regard to upgrading of the backyard and other informal settlements.

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Map

1.0 INTRODUCTION

- 1.1 This interim Engineering, Upgrading and Implementation Report presents the findings of the Engineering and Implementation Advisor engaged as part of the United States Agency for International Development (USAID) funded technical assistance package to the Alexandra Renewal Project (ARP). It has been prepared following the Advisor's two inputs to South Africa, firstly between April 23 and May 09, 2002 and secondly between September 16 and October 18, 2002. The first input focused exclusively on the ARP whereas, at the request of the Department of Provincial and Local Government (DPLG) and with the agreement of USAID and the World Bank. The second visit focused more broadly on the National Urban Renewal Programme (NURP) of which the ARP is one of nine "nodes" in six Municipalities in five Provinces. The Engineering and Implementation Advisor is one of a three-person technical assistance team comprising an Institutional, Policy and Finance Advisor and an Urban Planning Advisor.
- 1.2 In summary the Scope of Work of the Engineering and Implementation Advisor is to generally advise and assist the teams working on the Alexandra Renewal project (ARP) on:
- proposals for the rehabilitation/replacement/augmentation of secondary infrastructure serving Alexandra;
 - proposals for improving tertiary infrastructure serving the formal housing areas which have backyard shacks within the principle of minimal resettlement;
 - proposals for improving layouts, tertiary infrastructure, servicing and safety of the informal shack areas located on the river banks and river tributaries including proposals for appropriate resettlement areas which are likely to be necessary to accommodate those living in particularly hazardous locations.
- 1.3 Considerable progress has already been made with regard to project planning, design and implementation of some bulk engineering elements. For example a major improvement to the Jukskei river banks through Alexandra has been carried out. Some 7,500 households living on the river banks in hazardous locations below the 1 in 100 year flood line have been resettled and river banks stabilized and grassed. Construction of the first of the new interceptor sewers adjacent to the Jukskei river is also well underway as is the widening of London Road and a new bridge span over the Jukskei. In addition a series of contract packages for preparation activities (e.g. aerial photography) and for municipal infrastructure and

services (e.g. supply of waste bins) have already been carried out or are underway.

- 1.4 At initial meetings with the Program Manager, the Cluster Leader for the Physical Development Focus Area, the consultants to the Physical Development cluster responsible for housing and engineering and the Convenor for the Engineering Functional Area, the Advisor was asked to focus particularly on strategic engineering and implementation issues particularly with regard to upgrading of backyard areas and informal areas and upgrading. The Advisor's reports attempt to address such issues identified during this initial visit as well as provide advice and guidance specifically with regard to the upgrading of these areas.
- 1.5 The earlier reports of both the Institutional/Financial/Policy advisor and the Urban Planning Advisor explained the history and characteristics of Alexandra, the background to the ARP and the Technical Assistance objectives and therefore this information is not repeated in this report.
- 1.6 Important challenges recommendations are shown in bold italicized type in the report.

2.0 OVERVIEW OF PHYSICAL DEVELOPMENT INITIATIVES

2.1 Organizational Arrangements for ARP.

2.1.1 The ARP has three focus areas of development namely Economic, Social and Physical. Working under the Program Manager there is Cluster Leader for each focus area. These Cluster Leaders are consultants whose main task is essentially one of coordination and progress chasing. Within each focus area there are specific functional areas and for each of these functional (sectoral) areas there is a Convenor. Under the Physical Development cluster there are Convenors for Planning, Housing and Engineering. These Convenors are essentially the overall managers of the functional area for which they are responsible and each has an ARP consultant supporting them. Although seemingly complex the overall organizational arrangements for the ARP seem to be working satisfactorily.

2.1.2 The detailed preparation of the projects (individual business plans) for specific bulk and secondary municipal infrastructure and services projects is carried out by the line agency/department/utility of Johannesburg City Council. These projects are the responsibility of the Convenor for Engineering Services to coordinate and to provide overall management with consultant support. The responsibility for managing the upgrading of the formal (with backyard structures) and informal housing areas (on tributaries, school sites etc.) process falls under the Convenor for Housing together with a consultant who is also the Physical Development Cluster Leader. Detailed work with regard to Housing, including upgrading is carried out primarily by the Gauteng Provincial Department of Housing and consultants it has engaged.

2.1.3 To bring a spatial dimension to the ARP the Greater Alexandra area has been divided into 10 precincts and Precinct Managers are to be appointed by ARP. Very recently the Precinct Managers for three precincts have taken up their duties. ***At the initial briefing meeting of the three Precinct Managers there appeared to be a lack of clarity on what is expected of the Precinct Managers, certainly from their viewpoint. However initial problems have, to some extent been resolved and Precinct Managers, certainly in two cases, are working satisfactorily.*** The detailed process for moving forward on the upgrading interventions proposed in the Housing Business Plan and the role of ARP staff and consultants, the local authority, the utility agencies and the Precinct Managers was a particular area of focus for the Advisor during his first visit (see Section 4).

2.2 Business Plans and Other Project Documents.

2.2.1 In September 2000 an Overall Business Plan (Project Document) for the Reconstruction and Urban Renewal of Greater Alexandra (ARP) was prepared that outlined the existing situation in Alexandra, options for urban renewal and a way forward. In March 2001 an Overall Strategic Framework was prepared and in May 2001 Functional Area Business Plans were prepared for each of the three functional areas (i.e. Planning, Housing and Engineering) in the Physical Development Focus Area. In August 2001 an Overall Physical Development Strategy document was prepared and in October 2001 an ARP “Overall Proposals” document was prepared that outlined the whole ARP content and budget requirements. In January 2002 the Alexandra Urban Development Framework (AUDF) document was prepared by consultants

2.3 Spatial Planning, Land Use and Environmental Management Functional Business Plan.

2.3.1 The “Planning” Business Plan outlines the problem statement and vision for Alexandra. It also sets out the operational objectives, performance measures, a range of prioritized projects to be implemented under the functional area of “planning” together with an overall budget and project year. Projects fall under 5 categories namely; Development Framework; Land Management; Precinct Plans; Geographic Information System, and; Environment. The Development Framework sub-projects (i.e. for Transportation, Environment and Planning and Design) are essential for the guidance of the Housing and Engineering Functional Areas and thus these are priority year 1 projects. Figure 1c summarizes first year “Planning” functional area projects carried out or underway together with budget and expenditures to date.

2.3.2 Given the land ownership complexities and the impact on possible upgrading initiatives then Land Management sub-projects are also a priority as are the preparation of high priority precinct plans

2.4 Housing Functional Area Business Plan

2.4.1 The Functional Business Plan for Housing sets out eight strategies for Housing in Alexandra under two strategic pillars namely Housing Delivery and Housing Enablement. The “upgrading and redevelopment of free-standing informal settlements” is included under Strategy 1: Housing Delivery for Ownership and the upgrading and de-densification of backyard shacks is included in Strategy 2: Housing Delivery for Rental.

2.4.2 For each of the eight strategies a series of projects are outlined. In Strategy 1, Project 3 is the Upgrading and redevelopment of appropriate informal housing. In Strategy 2 Project 2 is the Densification and upgrading of backyard structures. For Strategy 1:Project 3 a budget of R 21 million has been allocated but with no expenditures anticipated in 2001/02. For Strategy 2: Project 2 a budget of R 90 million has been allocated again with no expenditure in 2001/02. Figure 1b summarizes first year housing functional area projects carried out or underway together with budget and expenditures to date.

2.5 Engineering Services Functional Business Plan

2.5.1 The Functional Business Plan for Engineering Services covers all of the main municipal engineering and urban infrastructure sub-sectors as well as other interventions proposed as follows:

- Water supply
- Sanitation
- Waste Management
- Roads
- Stormwater Drainage
- Transportation
- Environment of Jukskei River and Tributaries
- Telecommunications
- General (e.g. education, training, capacity building, maintenance management)

Under each of these sub-sectors various interventions are detailed in the plan. They include provision and upgrading of bulk, secondary and tertiary infrastructure and services.

2.5.2 The ARP is to be implemented over a 7-year period and the overall budget for the provision of engineering services, as given in the plan, is approximately R 304 million. Figure 1a summarizes first year engineering services functional area projects carried out or underway together with budget and expenditures to date.

2.6 Annual Engineering Services Business Plans

2.6.1 Prior to the fixing of budgets at the national and provincial government level (April-March budget year) and at the local government level (July-June budget year) annual business plans are prepared for projects to be implemented and funded during the coming year. The projects are prepared and implemented by the responsible agency for the specific sub-sector (e.g. Johannesburg Water for water and sewer projects; City Power for electricity; Johannesburg Roads Agency for roads and storm drainage; Pikitup Johannesburg for solid waste).

Regular monthly engineering service coordination meetings are held, chaired by the Engineering Convenor, and in addition monthly meetings of the Technical Task Team are also held. Monthly progress reports are prepared and complied by the Functional Convenor.

3.0 ENGINEERING SERVICES

3.1 Bulk Infrastructure and Municipal Services

3.1.1 With regard to the Engineering Services Functional Area, of the 19 projects approved for funding in 2000/2001, most are underway and a number completed. The annual budget approved was R 35 million although R18 million for the new reservoir at Linbro Park was deleted as Johannesburg Water are now funding this from their own resources. ***It is understood that procurement delays at both provincial and local levels have contributed to the relatively slow progress. If the ambitious targets of the ARP are to be met within the relatively short period (7 years) for such a complex project, and bearing in mind the most difficult elements (upgrading) are still to commence then it would be important for routine procurement decisions to be made expeditiously.*** A list of the projects for Year 1 (2001/2) for the ARP is given in Figure 1. Annual Business Plans (projects) for year 2 (2002/3) are currently being submitted by the respective responsible agencies/departments/utilities.

3.1.2 On the projects now underway during the first year of the ARP being implemented by the various agencies and utilities falling under the Engineering Services Functional Area Cluster progress appears satisfactory. The major issue has been that of resettlement. To date some 7,500 families have been removed from Alexandra as a result of the Jukskei River improvement. It is understood that some 20% of these families squatting on the banks of the Jukskei river were illegal and were not eligible for resettlement and compensation. Most of the resettlement has been to Diepsloot some 35km from Alexandra and to Durban Roodeport Diep, some 40 km from Alexandra, where houses have been provided. The current policy on resettlement is that people should be resettled within 15 km of Alexandra. Further sites closer to Alexandra have been identified for resettlement at Frankenwald, Islamic Trust Area, Marlboro South and Rietfontein although it is unclear how many low-income houses are to be permitted on these sites.

3.1.3 The resettlement process now seems to be working reasonably satisfactorily with significant numbers now being moved from the side of London Road to permit widening. Those to be relocated are moved directly to the new housing sites or, if their papers are still being processed, then to transit camps within Alexandra. An existing camp has recently been renovated under the ARP and a new camp of 500+ units of adequate size, of good construction and with adequate services is nearing completion.

4.0 RESIDENTIAL AREAS UPGRADING

4.1 Usual Definition of Urban Upgrading

4.1.1 Internationally the definition of “Upgrading” is normally considered as the in-situ improvement of municipal infrastructure and services and the general living conditions and environment of low-income, infrastructure-deficient, predominantly residential areas that are often informal. Such physical interventions are often complemented by social infrastructure elements and support programs, for such things as house improvements, micro-credit and income generating schemes. Often the granting of secure tenure and the legalization of areas to be upgraded, where they are informal, is a critical element of an upgrading program.

4.1.2 The Alexandra Upgrading initiatives are likely to include many of the above features. There are however some unique features in Alexandra that will affect the upgrading process. These are discussed in this chapter.

4.2 Alexandra Situation

4.2.1 *Informal Settlements.* There are informal settlements in Alexandra very similar to those found in other cities in the developing world (e.g. squatters on public space and along river banks) that lend themselves to an in-situ upgrading approach. These are on school sites and former public open spaces. Some relocation will likely be necessary, certainly in the case of school sites to create space for educational and recreational purposes and for safety and security reasons, but the upgrading of such areas should be relatively easy. However there are other settlement typologies that are somewhat different to the situations most commonly found in communities upgraded in other countries and these present major challenges to the ARP. These are summarized below.

4.2.2 *Backyard Dwellings.* Housing structures of variable quality have developed around the primary dwelling on old formal private plots (i.e. stands or erven) of around 1,000 square meters. These “backyard shacks” as they are often called (although many are constructed with permanent materials), have developed over time in an unplanned manner. Occupiers often pay a rent to the plot owner (who normally has legal title or right of occupancy), use communal water and sanitation facilities (small ablution kiosks) and most are connected to an electricity supply, whether legal or illegal. In some cases there are as many as 20 such structures on an old stand so that densities are very high (approximately 800 persons/ha) and environmental conditions poor.

4.2.3 Although the backyard dwellings are unplanned and form a haphazard

layout on the old large individual stands, the blocks of original stands are set out in a formal planned grid layout, which has followed an approved township plan. The old large stands within these blocks have, what might be termed, a “Full” level of service although now, with overloading and poor maintenance of infrastructure, the service level might be considered as “Intermediate”. The planning and construction standards are also high. For example the roads surrounding the blocks of stands have been designed to normal municipal standards, are engineered, are of adequate width for vehicular traffic, are paved with bituminous materials and have a formal storm water drainage system. Piped water and waterborne sewerage is provided which again has been designed and constructed to normal standards of the particular utility. However the infrastructure and services have to serve many times more people than the numbers (70,000) for which it was designed. This has been the major cause of servicing problems.

4.2.4 A major challenge here is to resolve ownership and tenure issues and to work with the owners of the stands and the remainder of the occupiers to develop an upgrading scheme which displaces as few people as possible while achieving an improved layout of the backyard structures and a better level of service to, and environmental conditions for, their occupants.

4.2.5 River Tributaries. The tributaries (public land) to the Jukskei River running through Alexandra, that are now culverted, have been completely settled upon with small informal structures. Densities are very high (over 800 p/ha), structures are of poor quality and the occupiers are at great risk of flood. Densities and layout of the informal dwellings on the tributaries are such that authorities are unable to gain access for maintenance. The new Water Act, which it is understood applies to these tributaries, requires that development within a 1-100 year flood line is not permitted. However application of this legislation would involve the removal of perhaps up to 5,000 structures that would likely prove a resettlement catastrophe! Consultants appointed to investigate the tributaries and arrive at the “life-threatening risk line” have recently reported and it appears that some 1,000 households do not require removal from the tributaries. It is proposed that two-storey housing could be constructed adjacent to the tributaries while leaving them clear. The culverted tributaries could form a footpath access to the housing.

4.2.6 The above approach seems the commonsense path to follow. A minimal relocation solution that removes those at greatest risk (within the life-threatening risk line determined) and permits access to the tributaries for maintenance and access purposes but does not adhere rigidly to a 1 in 100 year flood line would appear to be the appropriate solution.

4.3 Upgrading Projects Status.

4.3.1 Budget. The major share of expenditure for both the informal areas and backyard upgrading is likely to be on engineering services (in this case tertiary infrastructure) although the upgrading projects fall under the housing functional area. Under the Housing Business Plan the approved budget for housing in 2001/2 was approximately R 134 million for 25 projects. No ARP budget, for physical upgrading, was given, nor required, in the current year although significant “additional budget” needs were identified, namely R15 million for upgrading in backyard areas, R6 million for other informal areas and R1 million for school sites. Much of this budget was presumably for relocations.

4.3.2 Responsibility. Responsibility for planning, design and implementation of upgrading schemes requires the inputs of all three physical development functional groups (i.e. planning, engineering and housing), the local authority, its agencies and utilities as well as inputs of the Precinct Managers and stand owners and beneficiary communities. The Physical Development cluster leader and housing consultant has to drive the whole preparation process. It is understood that Regional Professional Teams to be appointed by the Provincial Department of Housing will be responsible for the detailed planning, engineering, preparation of bid documents, procurement and management of contractors/others carrying out implementation

4.3.3 Progress to Date. No upgrading of backyard, or informal housing, areas has yet been carried out. What has been done thusfar is the relocation of dwellings on hazardous land on the banks of the Jukskei river. This is outlined in section 3.0. However although no physical upgrading has been carried out aerial photography has been completed and a GIS for Alexandra established. A pilot exercise in “Transfer of Residential Properties” has also been completed which is intended to provide lessons in this key element of the future upgrading initiatives. In addition, the planning process for Alexandra that will provide the framework for upgrading as well as other ARP initiatives has also progressed through the “Planning” Functional Area Cluster. With regard to hostel upgrading it is now proposed that part of one of the hostels will be demolished to open up the central area and this will be redeveloped with new housing units.

4.4 Upgrading Context.

4.4.1 In the cities of many developing countries that have embarked on upgrading schemes in infrastructure-deficient, low income communities, upgrading has usually meant the provision and/or improvement of basic municipal infrastructure and services. These are planned and designed with an integrated, multi-sectoral approach, more recently, to functional least cost

standards. They are normally constructed by local contractors, often with community involvement, and funded by central and local government with no, or partial, capital cost recovery from the beneficiaries. Other complementary upgrading initiatives have included house improvement loans, loans to develop small business and provision of social infrastructure facilities (e.g. schools, clinics, community halls) and sometimes improvement of local markets. On completion, the infrastructure (predominantly tertiary) upgraded is taken over by the respective responsible authorities for operation and maintenance with some elements possibly maintained by the community. Projects are usually kept as simple as possible for ease of design and implementation and so that they can be completed close to planned time schedules, to estimated costs, and to a good standard of workmanship to achieve a significant impact.

4.4.2 In Alexandra whereas many of the above aspects of an upgrading project apply there are some fundamental differences from approaches adopted elsewhere. These are that existing infrastructure has been designed to established standards and thus a relatively high level of service already exists, as outlined earlier. The issue in Alexandra is not that there is no, or little, infrastructure but that it has become overloaded in places because of high densities of population for which the infrastructure was never designed. Also the infrastructure has fallen into disrepair because of lack of maintenance caused predominantly by difficult access, high densities and squatting on public space and over service lines. Lack of funds, largely because of non-payment of consumption charges and local taxes (e.g. property tax), for which part would normally be used for funding operation and maintenance, is another reason for the poor state of some infrastructure.

4.4.3 From the supply side, another difference to be considered in the proposed upgrading initiatives in Alexandra is that no contribution from the beneficiaries is expected.

4.5 Upgrading Project Principles and Design Considerations

4.5.1 When beginning the planning and design activities for an upgrading scheme for low-income, infrastructure-deficient areas one normally starts with the setting out of a series of principles for the scheme. The key principles and project design considerations normally thought to be international best practice, and the fit to the Alexandra upgrading situation, are discussed below.

4.5.2 *Selection of Communities.* Usually key determinants for selecting communities to participate in an upgrading program include a:

- high level of infrastructure deficiency and environmental conditions
- existence of community based organizations

- willingness to participate on the part of the community
- willingness and ability of community/residents to contribute to costs and/or pay consumer charges
- availability of bulk infrastructure to serve tertiary infrastructure to be upgraded (the most common component of an upgrading program)
- the fit with land use and development plans and the identification of communities not being situated on land where residence is dangerous or where key infrastructure has to be protected/provided and which therefore are likely to require resettlement.

4.5.3 In Alexandra the situation with regard to which communities are to participate is somewhat simpler as generally ALL informal settlements within the boundaries of the ARP are eligible for inclusion. The exception is for those which will not be compatible with future land use and development plans, including sectoral 'master plans', and those that would not wish to participate.

4.5.4 Given that the blocks of formal stands where backyard dwellings have developed number approximately 120, each of about 3 ha and totaling about 360 hectares, and that there are numerous informal settlements on public land (e.g. school sites and river tributaries, zoned open space) that are currently being identified then in Alexandra, it is more a question of which settlements are to be upgraded first and when will this be. ***In upgrading schemes it has been found that early visible impact is a key factor in beneficiaries acceptance. Thus to begin with areas where there is good physical and cadastral/ownership information and good community cohesion would seem important. In other words start with the simplest areas to deal with.***

4.5.5 *Community Participation.* Whereas internationally the early generation of upgrading projects, certainly those major initiatives supported by donors, were driven by government or were "top down" initiatives, in recent years this approach has been reversed. Demand-driven projects are now more the norm. With regard to upgrading of poor residential areas, the involvement of the respective beneficiary community at all stages of the project from identification, and planning through to implementation and maintenance has proven to be vital for the longer term sustainability of such projects.

4.5.6 In Alexandra it is unlikely that any other approach would, in any event, be workable. ***However given that in some areas there could be significant resettlement the participation of those communities in the upgrading initiatives in such areas will be difficult to achieve and is one of the major challenges for ARP. In this case it is critical for a very sensitive and flexible approach to the adoption of formal land use plans, planning, housing and engineering standards such that there is minimal resettlement. If communities can be convinced that authorities are taking such an approach and that THEY, the communities, are the important consideration***

and NOT the plans and standards, then there is a better chance of getting these communities to actively participate and the upgrading projects being successful.

4.5.7 Another key lesson learned in upgrading schemes internationally is to try not to sensitize communities at too early a stage in the process. The time taken to plan, design and implement upgrading schemes, and the inevitable delays that occur in an already long process, soon disillusion communities who always expect improvements tomorrow and who place little trust in local authorities and utilities. ***It is important therefore that programs are realistic and communities once engaged understand when physical improvements will occur and then for programs agreed with the respective community to be adhered to. In this regard it is understood that upgrading initiatives are to be carried out in parallel. This is extremely ambitious and will require significant human resources. In the coming weeks it is suggested that a detailed implementation schedule be prepared based on realistic times allowed for the considerable number of activities (e.g. community dialogue, the transfer of ownership process, planning, design, procurement, relocation, construction, issue of tenure agreements etc.). When this is done the human and financial resources needed to implement the various upgrading initiatives in parallel can be more accurately assessed. This may indicate that a phased approach to the upgrading initiative may be more manageable.***

4.5.8 *Multi-sectoral Approach.* International experience has shown that for visible impact and implementation efficiency reasons a multi-sectoral approach to the planning, design and implementation of upgrading schemes is preferable. It is understood that this is the approach to be adopted in Alexandra.

4.5.9 The informal and backyard area upgrading projects are quite properly included in the Housing Business Plan rather than the Engineering Services Business Plan albeit that there are likely to be a number of tertiary infrastructure (engineering) requirements in the areas. However the engineering departments, agencies and utilities will be involved in bulk and secondary infrastructure provision and the approval process for design of the tertiary systems required. Likewise the Planning Functional Cluster and Planning Authority will be involved in the overall planning process for Alexandra including new township extension plans, re-zoning of land as well as the transfer of ownership process. In order to clarify the planning and design process and responsibilities for the different stages in the process all three advisors met with the Program Manager and key actors from each of the three Physical Development Functional Groups (planning, housing and engineering). The process is outlined later in section 4.7.

4.5.10 *Costs, Cost Limits, Cost Recovery and Affordability.* Cost and affordability, at both government/local government and beneficiary level, is linked closely to

the choice of service levels and planning and engineering standards. Internationally in many upgrading schemes the target beneficiaries are required to pay a contribution to capital costs as well as to meet future cost of consumption and other recurrent costs for example those required for operation and maintenance (e.g. property tax). Because projects should be more demand-driven and sustainable then letting people know the cost implications, both capital and recurrent, of what they are demanding (i.e. service level of the particular sub-sector) is often critical to a project's ultimate success. An approach normally followed is to prepare simple matrices showing the key services likely to be necessary in an upgrading scheme, possible standards and service levels and the cost implications of each. These are normally major tools in the community dialogue process. An example of matrices, which would need to be refined for the Alexandra situation, are shown in Tables 1 and 2.

4.5.11 In most situations the funds available for upgrading projects are finite and thus it is important that all available funds are not expended on just a few areas with nothing then being available for others. For this reason, as well as the obvious beneficiary affordability reasons, then cost limits, on a per capita or per household or per hectare basis, are often placed on schemes. The matrices referred to above are often developed into a third simple matrix that present costs in these forms. An example is given in Table 3 that again would need to be refined for the Alexandra situation. This may prove useful in determining the order of magnitude costs for the informal settlement upgrading to assist in finalizing the budget and financing arrangements for upgrading (see 4.3.1 and below).

4.5.12 A further critical aspect is the determination of householders incomes such that an assessment can be made of the household income available to pay for municipal services. In the case of Alexandra this is more related to recurrent costs as no contribution to capital costs (cost recovery) is expected. Nevertheless funds available for the upgrading components of ARP are not unlimited and thus there needs to be some linkage between available budget and total costs which are very much linked to service levels and standards.

4.5.13 At this stage the source of funding for the upgrading initiatives does not seem to be clear. It is understood that the funds to be made available for upgrading are through the housing subsidies for those legal residents who have not received a previous subsidy. The subsidies are for both municipal infrastructure and services and superstructures. It is understood that for the upgrading of an informal area the costing and funding arrangements may work as follows:

- a) Cost of municipal infrastructure for whole scheme is calculated. This could be done simply by following the approach outlined in 4.5.10 and 4.5.11 or it could be done in more detail from preliminary engineering

design based on the preliminary Community Upgrading Plans that use the Block plan as a base but this will take much longer.

b) The total amount of housing subsidy available is determined from the socio-economic survey and registration exercise carried out in the particular settlement taking account of “illegals”, those who have already received a subsidy in the past and income levels.

c) The cost of the municipal infrastructure is subtracted (provided the cost of infrastructure is less than the total of the available subsidy) from the total subsidy amount determined and the remainder is distributed equally among the “legal” occupiers for improvements to their housing structures.

4.5.14 For backyard areas that consist mostly of renters on formal plots it is unclear how the funding arrangements (e.g. split between tertiary infrastructure and superstructures) would work. It is understood that further details with regard to the funding available for the various upgrading initiatives and how it is to be allocated will be covered in the “Housing Strategy shortly to be produced.

4.5.15 Engineering Standards and Service Levels. As referred to above, municipal infrastructure and services upgrading schemes are normally planned and designed to what might be described as “functional standards” or standards that are appropriate and affordable by the deliverers and the target beneficiaries. It is a waste to provide infrastructure and services that people do not really need, do not use, do not require and are thus reluctant to pay for. This aspect of upgrading design where normal historical standards are questioned and proposals for relaxing them are made is often a matter of debate with utilities and other delivery agencies. However in Alexandra the existing engineering standards are, what might be described as, “Full” standards (see matrices referred to earlier) in that the township is provided with paved roads, piped water, sewerage and electricity. In addition to this, any improvements necessary (up to the funding available through the subsidy arrangements described above) will not require contribution to the capital costs from the beneficiaries. Thus the issue of appropriate standards and service levels is somewhat different in Alexandra. Below is a discussion on the key municipal infrastructure and services sub-sectors at the tertiary level and the key issues for each.

- Water Supply. It would seem that the major issue to be resolved is with regard to water supply where Johannesburg Water policy is to provide “**a water connection per stand**”. The first 6 cubic meters of water supplied each month is free in such housing areas. Thus the issue relates to the backyard areas where there could be 20 or more dwellings/households on a stand. There is presently a culture of non-payment for services and thus understandably Johannesburg water is reluctant to provide more connections that involve delivery of more water and thus increase financial

losses. Likewise in the informal upgrading areas, providing individual water connections to each dwelling structure is unlikely to be efficient or in fact required. Appropriate functional standards for water supply thus need to be decided upon for each of these settlement typologies. For example yard taps for 2 to 4 properties may be appropriate. Whereas water meters are in theory may seem the appropriate solution they are costly to provide, maintain and read, they can be bypassed and misread (deliberately or otherwise). International experience of providing water meters in low income, informal areas is very mixed. Other forms of charging for water may need to be considered (e.g. flat rate, rate based on property area, pre-paid system).

- Sewerage. The issue with regard to sewerage (assuming that there is sufficient wastewater generated to ensure adequate functioning of the sewers) is more to do with the standard required for access and maintenance. ***Where structures have been located over sewer lines and manholes what is the minimum that can be accepted? In many countries it is not uncommon or prohibited to site buildings over tertiary sewers so perhaps the only requirement is for manholes to be accessible. Given high densities and high costs of sewerage a simplified form of tertiary sewerage may well be appropriate for many of the areas to be upgraded.***

However the “Evolving Sanitation Policy Framework for GJMC” prepared in August 2000 suggested sanitation options for different settlement typologies. This policy document might be useful in the determination of implementable and less costly sanitation solutions for Alexandra’s informal and backyard areas compared with conventional sewerage.

- Roads and Drainage. With regard to the backyard areas that are on private stands this is not an issue. However where it is necessary to upgrade or provide minor access to such areas a minimal standard should be suggested including that for collection of local storm water run-off in order to assist the owners. ***For the access routes into the larger informal areas reduced access standards (e.g. widths and alignments) to take cognizance of the existing layout, the need to minimize resettlement, and the relatively low levels of car ownership should be determined. Access standards in these areas should be based only on the need for access for emergency and municipal service vehicles.***
- Electricity and Street Lighting. It is understood that City Power has already decided upon, and is adopting, the standards for electricity supply in Alexandra. These are that all structures that wish for a connection and where a pre-paid card electricity meter can be installed may have a

connection. This is regardless of whether a structure is “legal” or not. Overhead supply is now given to such areas. This would seem an appropriate approach to upgrading. If streetlights are to be provided in these areas appropriate cost efficient (capital and recurrent costs), easily erectable solutions should be adopted.

- Solid Waste Management. As with electricity the solid waste management authority, “Pickitup” has already decided on the level of service to be provided in Alexandra. The general collection system is household collection system for all areas. Bulk containers or skips are provided in public places (e.g. markets) and institutional establishments (e.g. schools). Some 20,000 plastic waste bins of 85 liters capacity have recently been distributed to households in Alexandra and it is estimated that a further 40,000 (this suggests population numbers greater than the official figures) may be required. On delivery of the bins each household receiving one has to sign for it. It is policy that each household shall have a bin and collection is by compaction vehicle on a set number of times per week basis. Various contractors undertake the collection work for Pickitup. The costs of domestic collection are covered through property rates.

4.5.16 Visible Impact. Experience has shown that the best way to obtain community support for upgrading schemes and more importantly to encourage them to invest their own funds into their dwelling structures as well as to better look after the infrastructure and services upgraded is to create an early visible impact. When residents see what has been achieved in one area they are much more likely to support similar initiatives in their own community. To achieve such impact means deciding on how the scheme is to be planned, designed and implemented at the outset. A major reason for adopting a ‘multi-sectoral’ approach in upgrading schemes is to achieve this. ***Piecemeal, often un-coordinated, provision of services and continued disruption by contractors/separate service providers is a sure way to upset the community and create a negative visible impact rather than a positive one. Experience has shown that a “balanced” program of improvements carried out together has the greatest chance of achieving a positive visible impact in the quickest possible time.***

4.5.17 Bulk Infrastructure. Major elements of upgrading schemes are basic municipal infrastructure and services (e.g. water supply and sanitation) at the tertiary level. Internationally there are examples of upgrading schemes that have achieved very limited benefit because of constraints in the secondary and primary (bulk) infrastructure serving such tertiary level facilities. Thus an important consideration in upgrading schemes is always to closely assess the bulk situation, to identify on-going bulk infrastructure projects that may assist or to include such projects within an overall upgrading project if necessary. In the

case of Alexandra bulk infrastructure needs are quite properly included in the ARP.

4.5.18 Improvements to the bulk water supply systems serving Alexandra (e.g. new reservoir of 30ML at Linbro Park) currently being designed and programmed under ARP will ensure adequate supplies of water at adequate pressures to supply the tertiary network throughout town at all times.

4.5.19 Construction of the new interceptor sewers in accordance with the sewerage plan for the area is underway. These interceptors will reduce sewage loads on the existing secondary and tertiary sewers such that the tertiary systems (existing or upgraded) will be able to operate effectively.

Improvements to the primary storm water drainage collector, the Jukskei River, is nearing completion although a critical activity in this sector is to decide on the proposals for the tributaries.

4.5.20 Major road schemes for the area are about to commence to improve access to, and circulation within, the area (e.g. London Road widening).

4.5.21 *Community Upgrading Plans.* The preparation of a plan that indicates what is to be upgraded in a particular community/area, where, when and at what cost, operation and maintenance responsibilities for each element and to which the community and all other stakeholders agree to, and sign, is normally a key necessity in community upgrading schemes. ***In Alexandra it is suggested that the “Block Plan”, suitably augmented would be the equivalent of the Community Upgrading Plan (see Figures on Planning Process).***

4.5.22 *Operation and Maintenance.* There are examples of upgrading schemes that have been deemed failures after a relatively short period of time because insufficient attention and arrangements for operating and maintaining the upgraded infrastructure and services was not given at the outset. ***Who is to operate what and at what cost, sanctions that can be applied are all aspects that should be clearly understood and set out in the Community Upgrading Plan or augmented Block Plan.***

4.5.23 *Security of Tenure.* This is probably the most important principle to be considered in upgrading schemes. Internationally this has taken many forms, from the granting of an ownership title to squatters (e.g. Swaziland) to just the fact that government is investing in an area thus demonstrating that the area will not be cleared and people resettled (e.g. Ghana). The preferred route is normally for some form of occupancy right whether it is outright freehold ownership, leasehold ownership or a right of occupancy document.

4.5.24 In South Africa some form of right of occupancy/ownership document is essential. In Alexandra in the formal areas a transfer of housing process is to be followed. In the existing informal areas where squatting has taken place on public land, township plans are to be adjusted and rezoning of land use together with a cadastral exercise is to take place and stands are to be allocated to existing occupiers in accordance with the new township extension layout which will be the basis of the Community Upgrading Plan.

4.5.25 Incremental Improvement. Perhaps the overarching principle or concept of upgrading that is adopted in most upgrading schemes is that of incremental improvement. Schemes that give a significant improvement to as many people as possible in as short a time as possible and taking account of existing conditions, available budget and affordability are what is usually required. Better to give some improvement to the majority than full standards to only a few. Upgrading schemes planned and designed to appropriate functional standards should not be seen as the final solution. The infrastructure provided should be capable of being further upgraded in the future as people's aspiration and incomes improve. The concept is described in South Africa's new (Year 2000) "Red Book" or "Guidelines for Human Settlement Planning and Design". Section 5.6 – Public Utilities states "The conversion of collective to on-site household services should take place through incremental in-situ upgrading as the community circumstances improve".

4.6 Planning and Design Process

4.6.1 At meetings between the Program Manager, Physical Development Cluster Leader, planning, housing and engineering consultants to ARP and the three Advisors, agreement on the overall planning and design process for upgrading in Alexandra from the Precinct Plan down to the individual stand level was agreed.

4.6.2 Overall Alexandra Planning

The Planning Functional Group with consulting assistance is to prepare the following plans for Alexandra:

- Regional Plan
- Framework Plan
- Master Plan (1/2500 and including all sector plans)

4.6.3 Precinct Level Planning

From the above the Planning Functional Group is also to prepare for each of the ten precincts the following 3 plans:

- Existing Conditions or Status Quo Plan (Report)
- Concept Plan (development framework principles and broad proposals)
- Detailed Precinct Land Use and Development Plan (1/1000 – 1/500)

4.6.4 Local Area Planning

From the precinct plans the following plans will then be prepared.

- Existing Conditions Plan (example already available for pilot area)
- Block Plan (1/500-1/100)
- Area or Site or Yard or Erf Plan (1/100)

4.6.5 The Block Plan referred to above will be the basis of the, Community Upgrading Plan for presentation of existing conditions and for subsequent proposals for both informal settlement and backyard upgrading (120 blocks).

The activities, responsibilities, milestones and outputs are shown in Figure 3 & 4.

In preparing the Community Upgrading Plans (Block Plans) the following stages would normally followed:

4.6.6 Initial Survey Stage. This stage normally includes base mapping and site analysis, the identification of focus groups in each community, household surveys, preparation of a data base, and group/stakeholder discussions leading to agreement on general principles and scope of the project. Where titles to stands are to be given then the identification of owners and/or occupiers and the titling process commences.

4.6.7 Planning and Preliminary Engineering Design Stage: This stage normally includes planning of any layout adjustments, development and costing of functional standards, an assessment of bulk infrastructure needs, extrapolation of unit costs to arrive at an approximate cost estimation, as well as the assessment of the potential for community involvement during the implementation process and agreement on implementation modalities for the proposals.

4.6.8 Preliminary proposals and cost estimates for operation and maintenance have to be developed. Affordability of the project at the local government and utilities level as well as at the individual household level is assessed and proposals modified and/or areas for possible subsidy identified. A project financing plan would be prepared. Local government agencies and utilities that would be responsible for taking over responsibility for operation and maintenance of the infrastructure provided are brought into the discussions and their agreement to service levels, standards and layouts is obtained.

4.6.9 For each upgrading project, proposals (e.g. utilities) are prepared, costs calculated and the implementation arrangements and operation and maintenance responsibilities agreed. All of this is set out in a draft Community Upgrading Plan (and/or Block Plan) that is to be agreed between the various stakeholders. Adjustment to the layout of the community, identification of structures to be re-blocked or removed and families to be resettled are also identified (a separate

Resettlement Plan setting out the details of the resettlement including compensation to be paid would normally be prepared where there was significant resettlement of over 200 families). Formal approval of the layout in accordance with the local planning process may be required if there are changes to land use and stand boundaries.

4.6.10 An Environmental Management Framework and possibly an Environmental Impact Assessment would also be carried out at this time. In addition an Operational Manual may be prepared to guide those working on later projects.

4.6.11 Detailed Engineering Stage: This includes discussing and seeking the final agreement of communities and stakeholders to the program content, and the implementation modalities incorporating reasonable modifications to preliminary proposals. The Community Upgrading Plan is finalized and signed by all stakeholders. Detailed engineering design is completed, bid documents, and final cost estimates are prepared.

4.6.12 To assist those to be involved in the detailed preparation of the various upgrading components some “Suggestions for Terms of Reference for the Detailed Preparation of Projects for Upgrading Informal Settlements” have been prepared and are included in Annex 1. They would need some modification and/or augmentation to respond to each of the particular Alexandra upgrading area typologies.

4.7 Probable Physical Upgrading Elements

4.7.1 Following the basic principles upgrading proposals are likely to include the following:

- Paved main roads and storm drains with minor access ways in the backyard areas
- Tertiary water supply reticulation system improvements to serve formal stands in the case of backyard areas (not individual connections to each dwelling structure) and to shared connections/communal facilities in the informal areas
- Secondary sewerage system provision/repairs/replacement and possibly the provision of simplified/condominial sewerage in both backyard and informal areas
- The provision of individual household solid waste bins (already under way)
- Overhead electricity supply with pre-paid card meters to all who apply
- Basic street lighting improvements

4.8 Implementation

4.8.1 Experienced local contractors should be engaged to carry out the works for provision of “network” infrastructure (e.g. water and sewerage reticulation). This is necessary for efficiency, quality, works management and coordination reasons. However for minor works and any “stand alone” works (e.g. works to be carried out in the backyard areas) local artisans and/or community groups should be encouraged to tender for the works. Where works are of a relatively simple nature and emerging, inexperienced local contractors are likely to bid or community contracting is an option, tender documentation and procurement procedures should be kept as simple as possible.

Figure 1a

Figure 1b

Figure 1c

Figure 2

Backyard Upgrading

Activities, Responsibilities and Outputs

Figure 3

Informal Settlements Upgrading

Activities, Responsibilities and Outputs

Table 1

A TYPICAL CITY UPGRADING PROJECT

Levels of Service Options

Service Level	Service	Description
1. Minimum (Existing)	Water Sanitation Roads Drainage Refuse Collection Street lighting	Vendor/Well Pan Latrine/Open Space/Informal Shared Privy Unsurfaced and Ungraded No Formal Drainage No Formal Collection System No Lighting
2. Basic	Water Sanitation Roads Drainage Refuse Collection Street lighting	Communal Standpipes conn. to dist. system Formal Public Latrines Gravelled and Graded Designed Unlined Ditches Communal fixed collection points > 250m Lighting on Main Roads
3. Intermediate	Water Sanitation Roads Drainage Refuse Collection Street lighting	Yard Tap Household Pit Latrines Bus/Taxi Routes Paved, Others Graveled Secondary & key tertiary drains Lined Communal Skip or Roro containers @ 100m Lighting on Main & Secondary Roads
4. Full	Water Sanitation Roads Drainage Refuse Collection Street lighting	Metered In-house Supply from dist. system Waterborne Sewerage System All Roads Paved All Drains Lined Bins for Regular Door to Door Collection Lighting on All Roads

Note: This table is only indicative and is NOT based on Alexandra. It seeks only to outline a process. It could however be developed for Alexandra

Table 2
A TYPICAL CITY UPGRADING PROJECT
Planning Standards and Costing Assumptions

Service	Basic	Intermediate	Full
Water	Standpipes to provide 25 l/c/d located within approx. 100m of every house say 1 per 4 ha	Yard taps. Say 1 per 30/50 households say 1 per ha	House connections to every compound and/or plot. i.e. comprehensive supply network
Sanitation	Public Latrine of 10 holes to serve +- 1500 people i.e. 1 per 4 to 10 ha @ US\$20,000 per latrine	Pit Latrines 1 per approx. 20 people or approx. 4 families. i.e. 10 to 20 per ha @ US\$ 500 per latrine	Sewer connection per compound or plot plus sewerage network
Roads	Grade and gravel vehicular roads to flexible ROW and road widths avoiding demolition of structures @ approx. 150m to 250 m per ha and US\$ 20/m.	Grade and gravel roads and pave major access route i.e. for public transport/emergency service vehicles. Say 25m per ha paved @ US\$ 250 per m + key footpaths paved	All roads paved and most major footways Say US\$ 150 per m overall and 100m paving per ha + say 20% cost increments for footpaths for increasing density
Drainage	Drainage ditches excavated to line and level but unlined. Between 300m and 500m per ha @ US\$5/m.	All drainage ditches excavated to line and level and secondary drains lined. Say 50m/ha to 100m/ha @ US\$50/m	All drains lined. Say 400m/ha to 600 m/ha @ average US\$ 25/m
Refuse Collection	Communal containers at 250m walking distance or 1 per 10 ha @ US\$2000	Communal containers at 100m walking distance or 1 per 4 ha @ US\$2000	Door to door collection with household bins @ US\$40 each.
Street lighting	Lighting on existing poles on main roads at 5 to 7 lights per ha @ US\$ 300 each.	Lighting on all vehicular roads at 10 to 15 per ha @ US\$ 300 each	Lighting on all roads and paths at 15 to 20 per ha @ US\$ 300 each.

Note: This table is only indicative and is NOT based on Alexandra. It seeks only to outline a process. It could however be developed for Alexandra

Table 3**A TYPICAL CITY UPGRADING PROJECT****Service Levels Costs Matrix**

(US\$/Ha)			
Service/Av. Density	Min. to Basic	Min. to Intermediate	Min. to Full
Water			
a) 150 pers/ha	3200	5000	8000
b) 250 pers/ha	3200	5800	9500
c) 350+ pers/ha	3200	6500	11000
Sanitation			
a) 150 pers/ha	2000	4000	11250
b) 250 pers/ha	3300	6500	16250
c) 350+ pers/ha	4700	8750	19250
Roads			
a) 150 pers/ha	3000	7500	22500
b) 250 pers/ha	4000	8250	27500
c) 350+pers/ha	5000	9100	32500
Drainage			
a) 150 pers/ha	1500	4000	10000
b) 250 pers/ha	2000	5750	12500
c) 350+ pers/ha	2500	7500	15000
Refuse Collection			
a) 150 pers/ha	200	500	1000
b) 250 pers/ha	200	500	1600
c) 350+ pers/ha	200	500	2400
Street lighting			
a) 150 pers/ha	1500	3000	4500
b) 250 pers/ha	1800	3600	5100
c) 350+ pers/ha	2100	4500	6000
TOTAL			
a) 150 pers/ha	11400	24000	57250
b) 250 pers/ha	14500	30400	72450
c) 350+ pers/ha	17700	36850	86150
COST PER CAPITA			
a) 150 pers/ha	76	160	382
b) 250 pers/ha	58	122	290
c)350+ pers/ha	50	105	246

Note. 1. Above costs include on-site secondary and tertiary infrastructure. Off-site primary or bulk infrastructure is NOT included. This is site-specific.

Note: This table is only indicative and is NOT based on Alexandra. It seeks only to outline a process. It could however be developed for Alexandra. For example particular costs for Johannesburg need to be determined and the population density scenarios that would probably be something of the order of 400 p/ha, 600p/ha and 800p/ha.

Annex 1

ALEXANDRA RENEWAL PROJECT

Suggestions for Terms of Reference for the Preparation of Projects for Upgrading of Informal Housing Settlements.

(These could also be adapted for the backyard area typology)

BACKGROUND TO ALEXANDRA UPGRADING INITIATIVES

1. Alexandra has a population of somewhere between 230,000 and 350,000 people of which the majority are poor informal households living in unplanned, sub-standard housing settlements within Alexandra. These areas, of various typologies, have high population densities (600-800 p/ha), which puts severe pressure on land, environment, infrastructure and municipal services.
2. The ARP is to carry out programs to upgrade informal settlements housing low-income families. The project is to involve the various communities in deciding on their priorities to make a significant impact in environmental conditions, quality of life, efficiency and productivity through the provision of tertiary infrastructure and related activities. The transfer of ownership to the existing occupiers in the informal areas and rental agreements for those on private land is one of the key related activities.
3. Informal settlements are currently being identified on new maps from recent aerial photography and as part of project preparation. The planning process has been decided upon and surveys are being organized. Consultants are then to be hired by the Provincial Department of Housing (DLH) to carry out the detailed planning (including involving the communities) and design. Precinct Managers currently being appointed for the ten precincts in Alexandra will assist with the social facilitation. Overall project principles and order of magnitude of costs have already been estimated from preliminary planning work carried out by ARP and are set out in Upgrading Project Guidelines (to be attached by ARP).

OBJECTIVES OF THE UPGRADING PROJECTS

4. The objectives of the upgrading projects are:
 - a. To alleviate poverty in urban areas by improving the living and environmental conditions of the urban poor;

- b. To promote participatory planning methods for urban upgrading that are more responsive to people's demands

PRINCIPLES AND GUIDELINES FOR UPGRADING PROJECT PREPARATION

5. The most important principle is the active participation by communities in all stages of preparation and implementation. Communities are not expected to contribute to the funding of the improvements. The involvement of NGOs and mass organizations should also be encouraged to assist communities in the participatory exercise envisaged for project preparation.
6. Upgrading is the improvement of communities in-situ, with minimum relocation or resettlement, in order to maintain their social fabric. Experience in many other countries has demonstrated that this is the most cost-effective means of using scarce development resources to improve the quality of life of poor people in cities. Improvements are likely to include the upgrading of physical infrastructure and utility services (water supply, drainage, sanitation, solid waste management, access, electricity, street lighting etc). The improvement of houses will be the responsibility of the people themselves funded through the national housing subsidy arrangements. It is not envisaged that all the community upgrading requirements will be the same because specific investments will depend on existing conditions and the communities' priorities as well as city and local area plans, and other projects being carried out.
7. A multi-disciplinary, rather than a strictly sectoral approach shall be adopted for provision of tertiary infrastructure i.e. including, for example, water, drainage, paved access, and solid waste management in a single package of upgrading works. Experience shows that designing and implementing such packages in an integrated manner is more efficient. It also creates a highly visible and rapid impact, which encourages residents to improve their houses using their own resources.
8. The projects will improve infrastructure to appropriate functional standards that are affordable by the ARP and responsive to community demands. For affordability considerations, and to spread benefits as widely as possible in low-income communities in Alexandra the provision of infrastructure will be designed to be within cost limits, e.g. maximum allowable cost per household, and/or per hectare.
9. Due account shall be taken of the city's master plan, precinct plans and block plans. However, the process of upgrading is best carried out

- gradually and incrementally. Because of the size and cost of the task to cover the whole township, more than one input of upgrading may be required in low-income communities before the standards typically proposed in master plans can be achieved. Standards, service levels and project principles should be discussed with relevant departments/agencies/utilities so that only appropriate functional standards are decided upon for the tertiary infrastructure upgrading.
10. Where necessary, complementary bulk (primary and secondary) infrastructure will be required to ensure the tertiary infrastructure at the community level can function to meet the demands of the communities. This has already been assessed and various bulk infrastructure projects are being carried out or are planned under the ARP.
 11. Although the ARP upgrading initiatives are not seeking recovery of capital costs, options for level of service should be developed and discussed with the communities, to assist in developing community upgrading plans. Communities should be given clear explanations of the monthly costs associated with different levels of infrastructure and utility service. Recommendations should be made on realistic and achievable options.
 12. The consultants will assist communities to prepare “Community Upgrading Plans (CUPs)” which would use the formal Block Plans as a base. These will not only set out the physical layout and details of the proposed physical interventions proposed, but will describe the participation process, the community organizations and community management structures, costs, and budget arrangements. In addition to the communities, the consultants will also work closely with all stakeholders including the local authority, NGOs and the city infrastructure departments, agencies and utility companies. The CUPs will be presented to the relevant provincial and city departments, agencies and utilities for review and approval for funding.

SUMMARY OF PROJECT PREPARATION ACTIVITIES AND REQUIRED OUTPUTS

13. Sub-project preparation will comprise the following three stages or steps:

Stage 1: (A) For the selected settlements to be upgraded in this assignment carry out relevant surveys to determine relevant spatial, demographic, ownership, socio-economic, stand ownership, occupier, housing, infrastructure, utilities conditions (i.e. the status quo) and present this existing conditions analysis on Block Plans.

Stage 2: (A) Prepare the Community Upgrading Plan (final Block Plan), in conjunction with communities, prepare preliminary engineering designs and draft bid documents for proposed contract packages; (B) Prepare an Operational Manual; (C) Prepare an Environmental Impact Assessment or Environmental Management Framework as local regulations may require; (D) Prepare a Resettlement Action Plan (Relocation Plan);

Stage 3: Following review and approval of Stage 2 outputs, by the city authorities, agencies, utilities and other stakeholders; (A) Prepare detailed engineering, contract packaging and final bid document preparation for agreed contract packages.

20. The table below summarizes the outputs required from each stage of the consultants work.

Stage	Outputs
<u>Stage 1</u>	Existing Site Analysis and Conditions Plan (Status Quo)
<u>Stage 2</u>	Preliminary Community Upgrading Plan (based on formal Block Plan being prepared separately-check) and including preliminary engineering designs; Draft Bid Documents for proposed contract packages; Final CUPs; Operational Manual; Environmental Impact Assessment or Environmental Management Framework; Resettlement Action Plan (Relocation Plan).
<u>Stage 3</u>	Final Community Upgrading Plan with detailed engineering design; Final Bid Documents for agreed contract packages.

DETAILED SCOPE OF WORKS

Stage 1: (A) For the selected settlements to be upgraded in this assignment carry out relevant surveys to determine relevant spatial, demographic, ownership, socio-economic, stand ownership, occupier, housing and infrastructure conditions (i.e. the status quo);

A) For the selected settlements to be upgraded in this assignment carry out relevant surveys to determine relevant spatial, demographic, ownership, socio-economic, stand ownership, occupier, housing and infrastructure conditions (i.e. the status quo). These will include:

i) Area/block survey

The following surveys will be carried out:

- a. Engineering and topographical survey
- b. Socio-economic survey to determine income levels
- c. Registration of owners and occupiers survey
- d. Building, infrastructure and utilities conditions survey

ii) Analysis and Presentation of existing situation and conditions on a Block Plan (s) to be used as a basis for stakeholder dialogue and preparation of a Community Upgrading Plan (final Block Plan) showing all upgrading proposals to be prepared in Stage 2.

Stage 2: (A) Prepare the Community Upgrading Plan, in conjunction with communities, prepare preliminary engineering designs and draft bid documents for proposed contract packages; (B) Prepare an Operational Manual; (C) Prepare an Environmental Impact Assessment or Environmental Management Framework as local regulations may require; (D) Prepare a Resettlement Action Plan (Relocation Plan);

(A) Carry out community consultations and prepare Community Upgrading Plans (CUPs), preliminary engineering designs and draft bid documents:

- a. Carry out a community sensitization and participation exercise in the selected settlement. From this, with assistance of the respective community prepare a simple Community Upgrading Plan with inputs from provincial and local authority, agencies and utilities officials. In preparing the CUP the consultants should take account of, for example, drainage catchment areas and existing water, sewerage, road, drainage and electricity networks.

b. Specific tasks would include:

- i) Identify about 2-3 focus groups and/or “ad-hoc” committees (planning groups) in each community, including local officials, local cell leaders, Women’s and Youth groups, and non-governmental organizations. Organize training in the community-based approach to planning and upgrading best practices for all local stakeholders.
- ii) Facilitate focus group/ ad-hoc committee discussions to determine the possible role of a planning group representing all stakeholders in planning, implementation, and operation and maintenance of proposed upgrading components and work with these planning groups to analyze results of surveys and discuss reports throughout the preparation exercise.

- iii) From the household socio-economic surveys carry out in-depth interviews with key people in each community and hold public hearings to assess needs and demands for tertiary infrastructure (water supply, drainage etc) and social infrastructure (primary schools, health clinics etc). From this information determine the service levels and standards that communities can afford in terms of subsequent recurrent costs. If there is some unavoidable resettlement required, assess whether the communities will be able to reach consensus on this, for example, by allocating land within the community to those who have to move. If it is not possible to achieve consensus, propose alternative methods for resettling the affected people close to where they currently reside and in such a way that they will not be worse off after moving.
- iv) Confirm the general land use/occupancy rights situation in the selected area and key land issues (if any) to be addressed prior to, or during, the project.
- v) Prepare a Community Upgrading Plan, in conjunction with, and representing the consensus of, the communities and other stakeholders (as appropriate) in the selected settlement and present this to the city/agencies/utilities and the ARP Housing Team to enable it to review and approve the Plan or otherwise.
- vi) Prepare preliminary engineering designs for the technical options with all necessary calculations and data presentation including all surveys, soil investigations, drainage systems survey and inventory, identification of catchment areas, assessment and development of appropriate access and drainage design criteria, water usage and demand, assessment of existing water reticulation systems, assessment of existing sanitation systems including both human and solid waste, assessment of existing electricity supply systems and street lighting. All civil, hydraulic, and structural design calculations should be carried out in accordance with normal civil engineering practice.
- vii) Present the technical options and related costs to the community planning groups so that they clearly understand the associated capital and recurrent costs and can make an informed choice.

- viii) After the communities and their planning groups have reached a decision on the tertiary infrastructure to be adopted, prepare final Community Upgrading Plans for submission to the city authority. These shall incorporate drawings to appropriate scales in accordance with normal practice to enable bidding and construction. Subsequently prepare tender/contract documentation including bills of quantities; specifications; conditions of contract; conditions of tender; and all necessary information to a standard appropriate for national competitive bidding using national bid documents (also possibly to cover community contracting), all in draft form. It is envisaged that contracts would be arranged on a community area basis and include most sectoral investments (e.g. water supply, drainage/sewerage, access, street lighting etc). Standards and levels of service should be appropriate and functional as agreed during Stage 1;

(B) Operational Manual. Prepare an Operational Manual to serve as a detailed guide for the subsequent Phases 2 and 3 of the sub-project. The manual will set out the process followed in the identification, community participation, planning and engineering of the project as well as setting out the necessary approval procedures.

(C) Environmental Impact Assessment /Environmental Management Framework
All in accordance with local requirements.

(D) Resettlement Action Plan (Relocation Plan).
All in accordance with local requirements.

Stage 3: Following review and approval of Stage 2 outputs, by the city authorities, agencies, utilities and other stakeholders; (A) Prepare detailed engineering, contract packaging and final bid document preparation for agreed contract packages.

- a. Incorporate any reasonable technical modifications to the proposals that may be requested by the provincial and city authorities and prepare and seek final agreement on the Community Upgrading Plans from the community planning groups and relevant city departments, agencies and utilities.

- b. Prepare detailed engineering and final cost estimates (to an accuracy within 10%) for agreed contract packages and verify or modify the total program cost estimate;
- c. Prepare final bid document packages using standard documents for local bidding and, if appropriate, community based contracting, in packages to cover all work proposed.

OUTPUTS

The consultants will prepare the following reports, manuals and bid documents in the English language (30 hard copies of each plus 2 electronic copies) according to the schedule below.

Reports	Delivery Time after Commencement	Elapsed Time
Stage 1 Report	2 months after commencement	2 months
Community Upgrading Plans	4 months after commencement	4 months
Stage 2 Report & draft bid documents	As above	4 months
Final Community Upgrading Plans	6 months after commencement	6 months
Final Operational Manual	As above	6 months
Environmental Impact Assessment	As above	6 months
Resettlement (Relocation) Action Plan	As above	6 months
Workshop	To discuss Stage 2 Report & CUP	7 months
Stage 3 Report and final bid documents	Further 1 month after workshop	8 months

INPUTS

The likely professional disciplines required to carry out the assignment and approximate levels of effort are set out below on which the budget for the assignment has been based. These are indications only however and the consultants, in preparing their proposals, should make their own estimates of resources required to complete the assignment satisfactorily.

Indication of Professional Inputs and Levels of Effort for Assignment

<u>Discipline</u>	<u>Level of Effort</u> <u>(Person –</u> <u>Months)</u>
Team Leader (Planner or Municipal Engineer)	8
Social Scientists/Planners	8
Social Survey Teams (say 2)	16
Municipal Finance Specialist/Economist	2
Land Surveyor	2
Engineering Survey Team (2)	4
Geotechnical Engineer	1
Architect/Planner or Engineer/Planner	2
Highway/Traffic Engineer	1
Water/Sanitary Engineer	2
Environmental Planner/Engineer	1
Electrical Engineer	1
Cost Estimator/Procurement Specialist	2
TOTALS	50 (all levels)

Plus support staff

Figure 1c

PLANNING PROJECTS

ALEXANDRA RENEWAL PROJECT - PLANNING																		
IPW No	Description	Approved Current Budget	Additional budget required	Spent in 2001/2002 fin year													Total Apr 2002 to Mar 2003	Roll over to 2003/2004
					Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03		
01/PLA/3/2	Monitoring of Air Quality	826000			910000											20000	930000	
01/PLA/4/1	Opening of Sectional Title Registers	1700000												200000	200000	200000	600000	1100000
01/PLA/6/1	Environmental Control Officer	300000			10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	120000	180000
01/PLA/7/1	Development of Open Space	8834000		13750	10000	10000	10000	500000	500000	1000000	50000	500000	500000	500000	500000	500000	4580000	4240250
	Precinct Plans	3420000			520000	500000	500000	500000	500000	500000	500000	500000					4020000	
	Environmental Management Framework	712000			712000												712000	
	GP approval and Opening of Township Register	70000				35000			35000								70000	
	Environmental awareness and education		1500000					50000	50000	500000	100000	100000	200000	100000	50000	50000	1200000	300000
	TOTAL	15862000	1500000	13750	2162000	555000	520000	1060000	1095000	2010000	660000	1110000	710000	810000	760000	780000	12232000	5820250
GEARING																		
	Grassing of River Park sidewalks		2000000					250000	250000	250000	250000	250000	250000	250000	250000		2000000	300000
	TOTAL		2000000					250000	250000	250000	250000	250000	250000	250000	250000		2000000	300000

Figure 1a

ENGINEERING SERVICES PROJECTS

ALEXANDRA RENEWAL PROJECT - ENGINEERING SERVICES																		
IPW No	Description	Approved Current Budget	Additional budget required	Spent in 2001/2002 fin year	Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Total Apr 2002 to Mar 2003	Roll over to 2003/2004
01/ENG/1/1	Aerial photography	34200		34200														
01/ENG/2/1	Clean up of Jukskei and Tributaries	3106500		2411940	300000	394560											694560	
01/ENG/4/1	Jukskei River Sub-outfall	5837500			862000	789056	777656	734312	868194	403122	440000						4874340	963160
01/ENG/4/2	Design of Modderfontein Outfall	1162500				300000	300000	300000	200000	62500							1162500	
01/ENG/5/1	Intersection of Outfall Sewers	1000000			270000		100000	200000	200000	200000	30000						1000000	
01/ENG/6/2	Upgrading of bulk water storage	18100000		78090														18021910
01/ENG/7/1	Investigation into meters	50000				25000	25000										50000	
01/ENG/8/1	Implementation of stormwater master plan	2500000		119538	100000	200000			100000	300000	300000	300000	300000	300000	300000	180462	2380462	
01/ENG/10/1	Engineering education and training	502000				100000	50000	100000	100000	100000	52000						502000	
01/ENG/11/1	Model of Alexandra	250000			50000	50000	50000	50000	50000								250000	
01/ENG/13/1	Recycling centres	100000			100000												100000	
01/ENG/14/1	Local office for Pikitup	100000																100000
01/ENG/18/1	Bridge at London Road	2500000		198360		400000	400000	400000	400000	400000	301640						2301640	
01/ENG/19/1	Grids to kerb inlets	40000						20000	20000								40000	
	Upgrade water reticulation and meters		4000000									50000	50000	50000	50000	50000	250000	3750000
	Upgrade fire hydrants		500000									7500	7500	7500	7500	7500	37500	462500
	Install low-flush toilets		22000000									250000	250000	250000	250000	250000	1250000	20750000
	Remove illegal sewer connections		500000									3000	3000	5000	5000	5000	21000	479000
	Upgrade local sewers		2000000									30000	30000	30000	30000	30000	150000	1850000
	Protect from stormwater ingress		100000									1500	1500	1500	1500	1500	7500	92500
	Construct local waste collection point		1000000							100000	60000	60000					220000	780000
	Upgrade electricity services		120000000								2500000	4000000	2000000	2000000	4000000	4000000	18500000	101500000
	Funding for RCA area - electricity		1500000			750000	750000										1500000	
	Construction of sidewalks		2500000									37500	37500	37500	37500	37500	187500	2312500
	Construct enegy dissipaters		200000													100000	100000	200000
	Culvert investigation		200000		50000	50000	50000	50000									200000	
	Implement transportation study		20000000									700000	700000	700000	700000	700000	3500000	16500000
	Construct taxi rank on Far East Bank		1500000														125000	1250000
	Taxi lay-byes		1000000														125000	250000
	Implement Jukskei master plan		20000000					50000	500000	700000	750000	2000000	1000000	1000000	2000000	2000000	10000000	10000000
	Maintenance management programme		1000000								40000	40000	20000	20000	40000	20000	180000	820000
	TOTALS	35282700	198000000	2842128	1732000	3058616	2502656	1904312	2438194	2265622	4473640	7479500	4399500	4401500	7771500	7631962	50059002	180381570
GEARING																		
Johannesburg Water/CMIP																		
01/ENG/3/1	Collector sewer on West Bank	4800000		1906364	506000	376000	60000			100000	200000		500000	500000	500000	151636	2893636	
01/ENG/6/2	Linbro Park Reservoir	8618400				325000	220500	220500	44000	44000	518400	518400	515400	515400	518400	518400	3958400	4660000
01/ENG/6/2	Westlake bulk water main	775200			20000	25000	7500	7500	7500	7500			26150	169000	169000	169000	608150	167050
01/ENG/6/2	Frankenwald bulk water main	182400			4000	12500	3750	3750	3750	3750			36300	57300	57300		182400	
01/ENG/6/2	Marlboro South bulk water main	727320			17000	27000	8000	8000	8000	8000			75320	144000	144000	144000	583320	144000
01/ENG/6/2	Islamic Trust bulk water main	2285700							55000	90000	13000	13000	13000	13000			197000	2088700
01/ENG/6/2	Linbro to Alexandra water mains	7803300											170000	330000	35000	35000	570000	7233300
	Modderfontein Outfall Sewer		13000000										1000000	1500000	1500000	1500000	5500000	7500000
	Northern Relief Sewer		36000000													2000000	4000000	32000000
	Diepsloot bulk water supply		3000000					500000	500000	500000	500000	500000	500000				3000000	
Johannesburg Roads Agency/CMIP																		
	River Park Sidewalks		900000					150000	150000	150000	150000	150000	150000				900000	
	Westlake access road		6156000								100000	100000	50000	50000	100000	100000	500000	5656000
	Frankenwald access road		912000								30000	30000					60000	852000
	Islamic Trust access road		6840000											50000	100000	100000	250000	6590000
	Diepsloot access road and bridges		1000000		150000	150000	200000	200000	200000	100000							1000000	
Pikitup/Gauteng Dept of Public Works																		
	Environmental Theme Park		6435900				800000	800000	800000	800000	800000	800000	400000	400000	835900		6435900	
City Power																		
	Westfield Electrical Sub-station		16000000			1000000	1000000	1000000	1000000	3000000	3000000	3000000	3000000				16000000	
	Westlake electrical supply line		1100000								90000	90000					180000	920000
	Diepsloot area lighting		3000000											1500000	1500000		3000000	
Eskom																		
	Frankenwald electrical supply line																	
	Islamic Trust electrical supply line																	
Environmental Management																		
	Upgrading of Bruma Lake		3500000						200000	200000	200000	200000	200000				1000000	2500000
	TOTALS	20392320	97843900		191000	1539500	2239750	2889750	2968250	4903250	5401400	5401400	6136170	4728700	6959600	4566400	47925170	70311050

Figure 1b

HOUSING PROJECTS

ALEXANDRA RENEWAL PROJECT - HOUSING																		
IPW No	Description	Approved Current Budget	Additional budget required	Spent in 2001/2002 fin year													Total Apr 2002 to Mar 2003	Roll over to 2003/2004
					Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03		
01/HOU/1/2	Jukskei River S'Stwetla	26130998		25675452	455546												455546	
01/HOU/1/3	Removal of structures in floodplain	2433900		547200	500000	500000	500000	336700									1836700	
01/HOU/3/1	Transit facility	9527500		313195	500000	1000000	2000000	2000000	2000000	1714305							9214305	
01/HOU/4/1	Upgrading of existing formal stock	4909983	10000000	4909983	3000000		3000000		2000000		2000000						10000000	10000000
01/HOU/4/2	Financial support to beneficiary households Ext 8	200000			50000	50000	50000	50000									200000	
01/HOU/5/1	Development of new housing	50000		32162	17838												17838	
01/HOU/6/1a	Transfer of houses	262399	2000000	86219	50000	50000	50000	26180	300000		400000	400000			400000	500000	2176180	
01/HOU/6/1b	Financial support to beneficiary households DRD	2000000		1818150			90000	91850									181850	
01/HOU/7/1	Oversight of Institutional and Rental projects	200000	200000				50000			50000		50000			50000	100000	300000	100000
01/HOU/8/1a	Redevelopment of hostels - St Helen Joseph	1000000	2000000		800000		100000		100000			1000000			500000	500000	3000000	
01/HOU/8/1b	Redevelopment of hostels - M1 Mens	500000	2000000		350000		50000		50000		50000	500000			1000000	500000		
01/HOU/8/1c	Redevelopment of hostels - M2 Mens	500000	2000000		350000		50000		50000		50000	500000			500000	1000000		
01/HOU/9/1	Development of Rental Housing	30000000		7388045		5000000			5000000						5000000		15000000	7611955
01/HOU/10/1	Housing for persons with special needs	220000	4000000		100000	100000	20000	500000		500000		500000			500000		2220000	2000000
01/HOU/12/1	Land acquisition	20000000	20000000			5000000		5000000		5000000	5000000	5000000			10000000	5000000	40000000	
01/HOU/13/1	Land development facilitation	500000	10000000	59899	100000		50000		50000		100000				290101	350000	940101	500000
01/HOU/14/1	Establishment of Housing support mechanisms	500000	3000000			200000	500000	600000	500000	700000	500000	500000					3500000	
01/HOU/15/1	Establishment of Institutional Housing capacity	500000	1000000	407188	92812		250000		250000		250000	250000			250000		1092812	
01/HOU/16/1	Housing allocation system	500000	1000000			50000		100000		100000		100000			50000	100000	500000	1000000
01/HOU/17/1	Land claims	100000	80000	5699	15000	10000		10000		25000		25000			49301	40000	174301	
01/HOU/18/1	Precinct surveys	2000000	10000000			1000000	1000000	1000000	1350000	1350000	2300000	1000000	1000000				10000000	20000000
01/DIEP/1/1a	Multi Purpose Center	16495800		242459	100000	2000000	2000000	2000000	2000000	2000000	2000000	2000000	1000000	1153341			16253341	
01/DIEP/1/1b	Reception area	8892000		617584	500000	1000000	1000000	1000000	1000000	1265038	1509378	1000000					8274416	
01/DIEP/1/1c	Existing services	636120			150000	150000	150000	150000	86120								686120	
01/DIEP/1/1d	Mayibuye area	5925720			500000	1000000	1000000	1000000	1000000	1000000	425720						5925720	
	Upgrade and develop formal housing		5000000													1000000	1000000	4000000
	Upgrading of backyard structures		15000000												1500000	1500000	3000000	12000000
	London Road relocations		6651000		1000000	1000000											2000000	4651000
	School sites		1216000															1216000
	Jukskei River tributaries		11000000															11000000
	Other informal structures		6000000				2000000				2000000					2000000	6000000	
	Transit facility		5472500				1000000					3000000				1472500	5472500	
	Land identification		200000					50000		50000		50000				50000	200000	
	Accessing private finance		200000		25000	25000	25000	25000	50000	50000							200000	
	Method to assist non-qualifying beneficiaries		250000				50000		50000		50000				50000	50000	250000	
	Training local government		1000000							100000	100000	100000			100000	100000	500000	500000
	Precinct development facilitation		2000000			100000	100000	100000	200000	200000	300000	300000	50000	50000	300000	300000	2000000	
	TOTALS	133984420	121269500	42103235	8656196	18235000	15085000	14039730	15786120	14354343	16785098	16275000	2050000	1203341	20539402	14562500	152571730	74578955

Figure 3

ALEXANDRA RENEWAL PROJECT - INFORMAL SETTLEMENT UPGRADING PROCESS

ACTIVITIES, RESPONSIBILITIES AND OUTPUTS							
PLANNING AND DESIGN	Area	Description of Activities	Responsible entity	Other involvement	Outputs	Notes	
	Greater Alexandra	Setting of acceptable Engineering Standards/Service levels	ARP Engineering	Local Authority, Housing, Planning	Project Guidelines	Financial arrangements need to be clarified. Eg. Funding available from housing subsidy taking into account eligibility of beneficiaries needs to be determined. Cost of servicing for whole settlement should be determined. Balance should be available for consolidation.	
		Setting of acceptable Housing Standards	ARP Housing	Local Authority, Engineering, Planning			
		Setting of acceptable Planning standards	ARP Planning	Local Authority, Housing, Engineering			
		Setting of Social Services standards	ARP Social Services	Local Authority			
		Housing subsidy rules	ARP Housing	Dept of Housing			
	Precincts	Social facilitation	Precinct Manager			The aim of this process is to arrive at a community upgrading plan (CUP) which reflects the communities wishes and demands whilst adhering to planning, housing and engineering standards agreed above. The Precinct manager must be involved in the facilitation of the process.	
		Precinct Plans, status quo report, concept plans, detail land use zoning, block plans	Precinct Planners (ARP Team)	Precinct Manager, ARP Team, Local Authority	Precinct Development Plan		
	Blocks	Social facilitation	Precinct Manager				
		Registration of beneficiaries, mapping of structures, socio-economic status determination,	ARP Housing	Gauteng Dept of Housing	Existing Conditions Plan		
Block plan - planning and design of municipal infrastructure, preparation of SG diagram, environmental management plan		ARP Housing	Regional Professional Team of Gauteng Dept of Housing	Detail Block Plan			
IMPLEMENTATION	Municipal services	Municipal Infrastructure provision	Gauteng Dept of Housing	Regional Professional Teams and contractors appointed for construction	Completion of municipal infrastructure upgrading	Municipal infrastructure installed by Contractors for the Dept of Housing and taken over by the Local Authority through their Utilities. The upgrading of the houses (consolidation) is the responsibility of the erf owners/community. The coordination of all activities is the responsibility of the Precinct Manager.	
	Consolidation	House structures	Beneficiaries	Housing Support Center, Local authority and Precinct Manager	Informal Settlement upgrading completed		
	Relocation of persons	Relocation of persons	ARP Housing	Relocations contractor, Precinct Manager			